

### **REMARKS**

Claims 1-16, 18, 19 and 24-32 are pending in the application. Claims 5, 6, 9-13 and 30-32 have been withdrawn, and claims 17 and 20-23 have been canceled.

Claims 1 and 15 have been amended to provide proper antecedent basis.

The specification has been amended to reflect the fact that “polymer electrolyte membrane” and “proton exchange membrane” are interchangeable terms known to one of ordinary skill in the art, as discussed below. The abstract has been amended by to correct an informal usage by changing the term “polymer exchange membrane” to the more accepted term “polymer electrolyte membrane.” One of ordinary skill in the art would appreciate that such mere rephrasing and clarification of terms does not alter the original meaning of the written disclosure. Consequently, no new matter has been added.

Applicants made similar revisions in the amendment filed September 14, 2006. However, in the outstanding Office Action dated March 23, 2007, the Examiner objected to that amendment under 35 U.S.C. § 132(a) for allegedly introducing new matter (*i.e.*, the term “polymer electrolyte membrane”) into the disclosure. Likewise, the Examiner rejected claims 1-4, 7, 8, 14-15, 18, 19 and 24-29 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. More specifically, the claims were rejected under 35 U.S.C. § 112, first paragraph, because the Examiner alleged that the originally filed disclosure does not support the limitation “the perfluorinated sulfonic acid polymer is substantially similar to the polymer electrolyte membrane in the fuel cell” (claim 1, lines 4-5 and claim 15, lines 4-5), and hence the limitation constitutes new matter.

Applicants respectfully disagree with the Examiner’s assertions. MPEP § 2163.07 states, “Mere rephrasing of a passage does not constitute new matter. Accordingly, a rewording of a passage where the same meaning remains intact is permissible.” (emphasis added). This rule is illustrated by the following hypothetical found in *In Re Smythe*, 480 F.2d 1376, 1384 (Cust. & Pat. App 1973):

If the original specification of a patent application on the scales of justice disclosed only a 1-pound “lead weight” as a counterbalance to determine the weight of a pound of flesh, we do not believe the applicant should be prevented, by the so-called “description requirement” of the first paragraph of § 112, or the prohibition against new matter of § 132, from later claiming the counterbalance as a “metal weight” or simply as a 1-pound “weight,” although both “metal weight” and “weight” would indeed be progressively broader than “lead weight,” including even such an undisclosed, but obviously art-recognized equivalent, “weight” as a pound of feathers. The broader claim language would be permitted because the *description of the use and function* of the lead weight as a scale counterbalance in the *whole disclosure* would immediately convey to any person skilled in the scale art the knowledge that the applicant invented a scale with a 1-pound counterbalance weight, regardless of its composition.

(emphasis in original).

Likewise, in the present application, one of ordinary skill in the art would readily understand that that the term “polymer electrolyte membrane” is the more preferred art-recognized equivalent of the term “proton exchange membrane.” First, the United States government has recognized the equivalence of these two terms. As stated in a tutorial entitled “How They Work: PEM Fuel Cells” on the website [www.fueleconomy.gov](http://www.fueleconomy.gov), which is maintained by the United States Department of Energy, “Polymer Electrolyte Membrane (PEM) fuel cells – also called Proton Exchange Membrane fuel cells.” A copy of this tutorial is attached herewith. Other popular sources also equate these two interchangeable terms, for example, [www.wikipedia.com](http://www.wikipedia.com) (see 1<sup>st</sup> paragraph) and the website for the Center of Fuel Cells at the University of South Carolina (see 2<sup>nd</sup> subheading and 3<sup>rd</sup> full paragraph), among others. Copies of these tutorials are also attached.

Additionally, issued U.S. patent no. 6,730,426 (column 1, line 63 to column 2, line 10) illustrates that the terms “polymer electrolyte membrane” and “polymer exchange membrane” are interchangeable:

In a polymer electrolyte membrane fuel cell, the electrolyte is an organic polymer in the form of a proton conducting membrane, such as a perfluorosulfonic acid polymer. The separator plates of a polymer exchange membrane fuel cell stack are used to channel air to the cathode sides, hydrogen-rich gas to the anode sides, and a cooling medium between the anode and cathode. Gaskets are required to prevent these gases and liquids from directly contacting each other within the stack or from leaking out across perimeter seals. Providing an effective seal is particularly problematic due to the nature of the graphite/carbon bi-polar separator plates utilized in polymer electrolyte membrane fuel cell stacks.

(emphasis added). Thus, Applicants believe that they have not added new matter in either the amendment above or the amendment filed September 14, 2006. Consequently, Applicants respectfully request the Examiner to withdraw the objection to the September 14, 2006 amendment under 35 U.S.C. § 132(a) and the rejection of claims 1-4, 7, 8, 14-15, 18, 19 and 24-29 under 35 U.S.C. § 112, first paragraph.

The Examiner has also rejected claims 1-4, 7, 8, 14-15, 18, 19 and 24-29 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner alleged in part that the term “the polymer electrolyte membrane in the fuel cell” (claim 1, line 5; and claim 15, lines 5-6) lacks antecedent basis in the claims, and is therefore indefinite. In response to the Examiner’s concerns, Applicants have amended claims 1 and 15 to provide proper antecedent basis. The Examiner also alleged in part that it is not clear what is meant by the term “substantially similar” (claim 1, lines 4-5; and claim 15, line 5) since a polymer electrolyte membrane has not been identified in the disclosure originally filed. Applicants respectfully traverse the Examiner’s assertion because, as discussed above, one of ordinary skill in the art would readily appreciate that the terms “polymer electrolyte membrane” and “polymer exchange membrane” are interchangeable.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. No new matter has been added. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Applicants believe a one month extension is required in connection with the submission of this Response. If any other extension of time is required, it is hereby petitioned for under 37 C.F.R. § 1.136, and if any other required fee is due, the Commissioner may charge appropriate fees to H.T. Than Law Group, Deposit Account No. 50-1980.

Respectfully submitted,

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Enclosures:

Petition for 1-month extension of time;

“How They Work” available at [http://www.fueleconomy.gov/feg/fcv\\_PEM.shtml](http://www.fueleconomy.gov/feg/fcv_PEM.shtml);

“Proton exchange membrane fuel cell” available at

[http://en.wikipedia.org/wiki/Proton\\_exchange\\_membrane\\_fuel\\_cell](http://en.wikipedia.org/wiki/Proton_exchange_membrane_fuel_cell); and

“Fuel Cell Today” available at [http://www.che.sc.edu/centers/PEMFC/about\\_fuelcell\\_1.html](http://www.che.sc.edu/centers/PEMFC/about_fuelcell_1.html).